



## Section 5

# Biodiversity Investment Areas

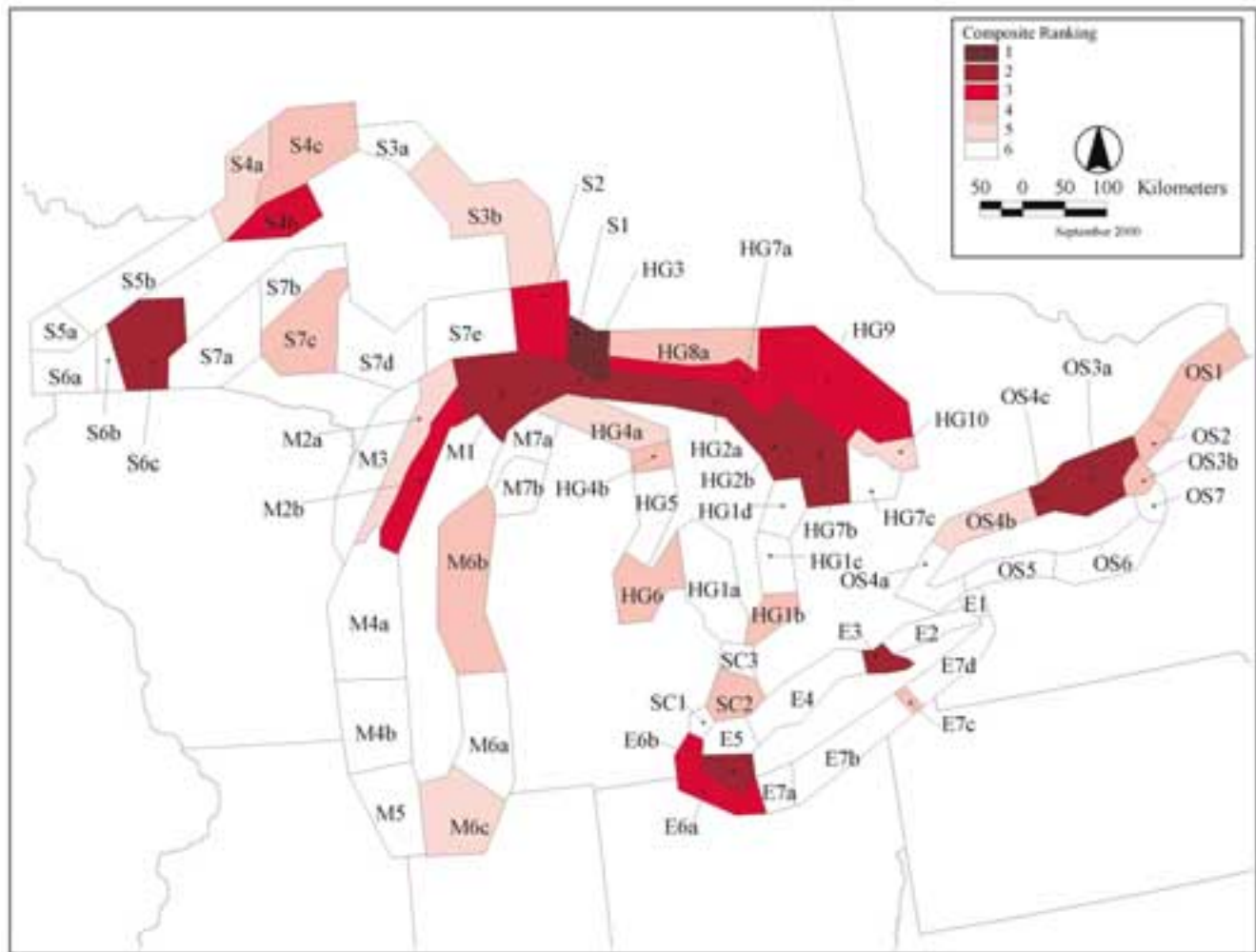
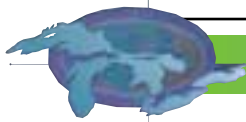
Biodiversity Investment Areas (BIAs) are areas having clusters of biodiversity values, specifically, species or communities of special interest, a diversity of habitats, communities and species, and productivity and integrity. The nearshore terrestrial background paper, *Land by the Lakes, Nearshore Terrestrial Ecosystems*, prepared for SOLEC 1996, coined the phrase to signify areas of unusual biological diversity in need of protection from human impacts. For SOLEC 1998, two additional BIA papers on coastal wetlands and nearshore aquatic habitats further refined the BIA concept. At SOLEC 2000, the BIA work from previous SOLECs on nearshore terrestrial, coastal wetlands, and nearshore aquatic BIAs was integrated.

BIA integration was undertaken to begin to show the relationships amongst nearshore components of the Great Lakes. A series of 70 shoreline units were selected as a basis for the integration analysis. The coastal eco-reaches identified by the 1998 coastal wetlands BIA paper were used as a starting point. In order to fairly address all three nearshore zones (terrestrial, coastal wetlands, aquatic), three broad evaluation criteria were proposed: species or communities of special interest; diversity of habitats, communities and species; and productivity and integrity. A total of ten data sets were identified which could be used to apply the evaluation criteria to the entire Great Lakes shoreline. Data were summarized for each of the 70 shoreline units.

Tier	Composite ranking combination	Shoreline units within group	Total length of shoreline units in group (km)	% of total shoreline length
1	AAA	S1	687	3.6%
2	AAB	OS3a, OS4c, E3, E6b, HG2a, HG2b, HG3, HG7b, M1, S6c	3552	18.5%
3	AAC, ABB	E6a, HG7a, HG9, M2b, S2, S4b	2452	12.8%
4	AAD, ABC, BBB	OS1, OS2, OS3b, E7c, SC2, HG1b, HG4b, HG6, HG8a, M6b, S4c, S7c	5108	26.7%
5	ABD, ACC, BBC	OS4b, HG4a, HG10, M2a, M6c, S3b, S4a	1992	10.4%
6	All other combinations	34 units	5432	28.0%

### Biodiversity Investment Area integration rankings.

Source: Ron Reid, Bobolink Enterprises, Karen Rodriguez, U.S. Environmental Protection Agency-Great Lakes National Program Office, Heather Potter and Michele DePhilip, The Nature Conservancy



## Biodiversity Investment Area integration status.

Source: Ron Reid, Bobolink Enterprises, Karen Rodriguez, U.S. Environmental Protection Agency-Great Lakes National Program Office, Heather Potter and Michele DePhilip, The Nature Conservancy

An evaluation ranking was assigned for each of the three criteria for each shoreline unit. Units were then assigned to tiers based on their composite rankings for all three criteria. Shoreline units with the highest overall rankings were highlighted. Clusters of high ranking shoreline units are potential Biodiversity Investment Areas. Thus far, these potential BIAs have been named informally using nearshore terrestrial BIA names from *Land by the Lakes*, or commonly known geographic names.

The results of the rankings for each of the three criteria were compiled to produce composite rankings. The top two tiers encompass just over 22% of the shoreline length in 11 shoreline units. Their

distribution dramatically illustrates the importance of the "Mackinac-Manitoulin Arch" - the crescent of significant biodiversity sites that encompasses the northern parts of Lake Michigan, Lake Huron and Georgian Bay. In particular, the outstanding significance of the St. Marys River is noted. Adding the next tier of shoreline units brings the total shoreline encompassed by these priority units to over one-third of the Great Lakes coast, and broadens the distribution across other sections of the lakes.

The results suggest that a few of the previously identified terrestrial BIAs have only medium ranks when coastal wetland and nearshore aquatic data sets are included in the analysis. Eastern Lake



Superior, Chicago Wilderness, and Presque Isle, for example, are terrestrially significant, but did not rank high in the integrated BIA process, a conclusion not well received by those working to restore the areas. It is important to note that while in some areas, such as the southern end of Lake Michigan, a highly developed and hardened shoreline has inhibited land - water interactions, thereby posing a threat to rare terrestrial species, significant but fragmented terrestrial areas remain that need protection and restoration.

Recommendations for further BIA work include:

1. Maps for BIAs need to be updated periodically to accommodate new scientific findings as additional digital data sets are developed.
2. Data contributing to the assessment of Criterion 3, Productivity and Integrity, needs to be refined to include direct measures of current productivity or ecosystem integrity.
3. The United States data set on rare species and communities needs to be refined.
4. A more detailed review of values and potential BIA boundaries is needed, at least for the top four tiers of shoreline units.
5. Long term monitoring of ecosystem health indicators needs to be implemented both within and outside of BIAs.
6. The level of local awareness about the special qualities of BIAs needs to be raised and local support and participation in ecological restoration programs needs to be encouraged. Care must be taken to show that although an area is not as biologically rich as the Mackinac-Manitoulin Arch does not mean it is unimportant and therefore disposable.

